This listing of claims will replace all prior versions, and listings of claims in the application.

LISTING OF CLAIMS:

1. (Once Amended) A respiratory gas exchange monitor, comprising:

a respiratory gas conduit configured to convey inhaled gases and exhaled gases of a subject;

a single respiratory gas flow meter coupled to said respiratory gas conduit, said respiratory gas flow meter being configured to generate an output associated with both a volume of said inhaled gases and a volume of said exhaled gases;

a respiratory gas sensor coupled to said respiratory gas conduit, said respiratory gas sensor being configured to generate an output associated with a concentration of oxygen in said exhaled gases; and

a computation unit coupled to said respiratory gas flow meter and said respiratory gas sensor, said computation unit being configured to process said output of said respiratory gas flow meter and said output of said respiratory gas sensor to determine an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject, said computation unit being configured to determine a respiratory quotient of said subject based on said amount of carbon dioxide produced and said amount of oxygen consumed.

2. (Previously Presented) The respiratory gas exchange monitor of claim 1, wherein said respiratory gas flow meter is an ultrasonic flow meter.

3. (Previously Presented) The respiratory gas exchange monitor of claim 1, wherein said respiratory gas sensor is an oxygen sensor.

4. (Previously Presented) The respiratory gas exchange monitor of claim 1, wherein said output of said respiratory gas sensor is further associated with a concentration of oxygen in said inhaled gases.

5. (Previously Presented) The respiratory gas exchange monitor of claim 1, wherein said computation unit is configured to process said output of said respiratory gas flow meter

to determine said volume of said inhaled gases and said volume of said exhaled gases, and said computation unit is configured to process said output of said respiratory gas sensor to determine said concentration of oxygen in said exhaled gases.

6. (Previously Presented) The respiratory gas exchange monitor of claim 5, wherein said computation unit is configured to determine said amount of carbon dioxide produced and said amount of oxygen consumed based on said volume of said inhaled gases, said volume of said exhaled gases, said concentration of oxygen in said exhaled gases, and a concentration of oxygen in said inhaled gases.

7. (Previously Presented) The respiratory gas exchange monitor of claim 6, wherein said computation unit is configured to determine said concentration of oxygen in said inhaled gases based on a concentration of oxygen in ambient air.

8. (Previously Presented) The respiratory gas exchange monitor of claim 6, wherein said computation unit is configured to determine said respiratory quotient based on a ratio of said amount of carbon dioxide produced and said amount of oxygen consumed.

9. (Previously Presented) The respiratory gas exchange monitor of claim 1, wherein said computation unit is configured to compare said respiratory quotient with a reference respiratory quotient to determine a measure of deviation of said respiratory quotient with respect to said reference respiratory quotient.

10. (Previously Presented) The respiratory gas exchange monitor of claim 9, wherein said computation unit is configured to determine said reference respiratory quotient based on a nutrient intake of said subject.

11. (Previously Presented) The respiratory gas exchange monitor of claim 1, further comprising a display unit coupled to said computation unit, said display unit being configured to provide indicia of said respiratory quotient.

12. (Once Amended) A respiratory gas exchange monitor, comprising:

a single respiratory gas flow meter configured to generate an output associated with both the inhaled gases and the exhaled gases of a subject;

a respiratory gas sensor configured to generate an output associated with said exhaled gases; and

a computation unit coupled to said respiratory gas flow meter and said respiratory gas sensor, said computation unit being configured to process said output of said respiratory gas flow meter to determine a volume of said inhaled gases and a volume of said exhaled gases, said computation unit being configured to process said output of said respiratory gas sensor to determine a concentration of oxygen in said exhaled gases, said computation unit being configured to determine an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject based on said volume of said inhaled gases, said volume of said exhaled gases, and said concentration of oxygen in said exhaled gases, said computation unit being configured to determine a respiratory quotient of said subject based on a ratio of said amount of carbon dioxide produced and said amount of oxygen consumed.

13. (Previously Presented) The respiratory gas exchange monitor of claim 12, further comprising a respiratory gas conduit configured to convey said inhaled gases and said exhaled gases as said subject breathes, said respiratory gas flow meter and said respiratory gas sensor being coupled to said respiratory gas conduit.

14. (Previously Presented) The respiratory gas exchange monitor of claim 13, wherein said respiratory gas conduit includes a flow tube.

15. (Previously Presented) The respiratory gas exchange monitor of claim 12, wherein said respiratory gas flow meter includes a plurality of ultrasonic transducers.

16. (Previously Presented) The respiratory gas exchange monitor of claim 12, wherein said respiratory gas sensor is a fluorescence quench oxygen sensor.

17. (Previously Presented) The respiratory gas exchange monitor of claim 12, further comprising a display unit coupled to said computation unit, said display unit being configured to provide indicia of said respiratory quotient.

18. (Once Amended) A respiratory gas exchange monitor, comprising:

a single respiratory gas flow meter configured to generate an output associated with both the inhaled gases and the exhaled gases of a subject; and

a computation unit coupled to said respiratory gas flow meter, said computation unit being configured to process said output of said respiratory gas flow meter to determine a volume of said inhaled gases, a volume of said exhaled gases, and a mass of said exhaled gases, said computation unit being configured to determine an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject based on said volume of said inhaled gases, said volume of said exhaled gases, and said mass of said exhaled gases, said computation unit being configured to determine a respiratory quotient of said subject based on a ratio of said amount of carbon dioxide produced and said amount of oxygen consumed.

19. (Previously Presented) The respiratory gas exchange monitor of claim 18, further comprising a respiratory gas conduit configured to convey said inhaled gases and said exhaled gases as said subject breathes, said respiratory gas flow meter being coupled to said respiratory gas conduit.

20. (Previously Presented) The respiratory gas exchange monitor of claim 18, wherein said respiratory gas conduit includes a flow tube.

21. (Previously Presented) The respiratory gas exchange monitor of claim 18, wherein said respiratory gas flow meter includes a plurality of ultrasonic transducers.

22. (Previously Presented) The respiratory gas exchange monitor of claim 18, wherein said computation unit is configured to determine a mass of carbon dioxide and oxygen in said exhaled gases based on said mass of said exhaled gases and a mass of nitrogen in said exhaled gases.

23. (Previously Presented) The respiratory gas exchange monitor of claim 22, wherein said computation unit is configured to determine said mass of nitrogen in said exhaled gas based on a concentration of nitrogen in ambient air.

24. (Previously Presented) The respiratory gas exchange monitor of claim 22, wherein said computation unit is configured to determine a concentration of oxygen in said exhaled gases based on said mass of carbon dioxide and oxygen in said exhaled gases, and said computation unit is configured to determine said amount of carbon dioxide produced and said amount of oxygen consumed based on said volume of said inhaled gases, said volume of said exhaled gases, and said concentration of oxygen in said exhaled gases.

25. (Previously Presented) The respiratory gas exchange monitor of claim 18, further comprising a display unit coupled to said computation unit, said display unit being configured to provide indicia of said respiratory quotient.

26. (Once Amended) A respiratory gas exchange monitor, comprising:

a conduit configured to convey inhaled gases and exhaled gases of a subject;

a first sensor coupled to said conduit, said first sensor being configured to generate a first signal associated with both a volume of said inhaled gases and a volume of said exhaled gases;

a second sensor coupled to said conduit, said second sensor being configured to generate a second signal associated with a concentration of oxygen in said exhaled gases; and

a computation unit coupled to said first sensor and said second sensor, said computation unit being configured to process said first signal and said second signal to determine an amount of carbon dioxide produced by said subject and an amount of oxygen

consumed by said subject, said computation unit being configured to determine a respiratory quotient of said subject based on said amount of carbon dioxide produced and said amount of oxygen consumed.

27. (Previously Presented) The respiratory gas exchange monitor of claim 26, wherein said conduit includes a flow tube.

28. (Previously Presented) The respiratory gas exchange monitor of claim 26, wherein said first sensor is an ultrasonic flow meter.

29. (Previously Presented) The respiratory gas exchange monitor of claim 26, wherein said second sensor is a fluorescence quench oxygen sensor.

30. (Previously Presented) The respiratory gas exchange monitor of claim 26, wherein said computation unit is configured to compare said respiratory quotient with a reference respiratory quotient to determine a measure of deviation of said respiratory quotient with respect to said reference respiratory quotient.

31. (Once Amended) A respiratory gas exchange monitor, comprising:

integral sensor means for determining both a volume of inhaled gases of a subject and a volume of exhaled gases of said subject;

means for determining a concentration of oxygen in said exhaled gases;

means for determining an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject based on said volume of said inhaled gases, said volume of said exhaled gases, and said concentration of oxygen in said exhaled gases; and

means for determining a respiratory quotient of said subject based on a ratio of said amount of carbon dioxide produced and said amount of oxygen consumed.

32. (Previously Presented) A respiratory gas exchange monitor, said respiratory gas exchange monitor being configured to perform a method comprising:

determining a volume of inhaled gases and a volume of exhaled gases;

determining a speed of sound in said exhaled gases;

determining an amount of carbon dioxide produced and an amount of oxygen consumed based on said volume of said inhaled gases, said volume of said exhaled gases, and said speed of sound in said exhaled gases; and

determining a respiratory quotient based on said amount of carbon dioxide produced and said amount of oxygen consumed.

33. (Once Amended) A method of determining a respiratory quotient of a subject, comprising:

determining a volume of inhaled gases of said subject and a volume of exhaled gases of said subject in a single gas flow meter;

determining a mass of carbon dioxide and oxygen in said exhaled gases;

determining a concentration of oxygen in said exhaled gases based on said mass of carbon dioxide and oxygen in said exhaled gases;

determining an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject based on said volume of said inhaled gases, said volume of said exhaled gases, and said concentration of oxygen in said exhaled gases; and

determining a respiratory quotient of said subject based on said amount of carbon dioxide produced and said amount of oxygen consumed.

34. (Previously Presented) The method of claim 33, wherein determining said mass of carbon dioxide and oxygen in said exhaled gases includes:

determining a mass of said exhaled gases;

determining a mass of nitrogen in said exhaled gases; and

determining said mass of carbon dioxide and oxygen in said exhaled gases based on said mass of said exhaled gases and said mass of nitrogen in said exhaled gases.